

## ABSTRACT OF THE INVENTION

An automation system wherein fault conditions are identified by providing clearer fault messages. The system is defined in terms of components, and further in terms of inputs, outputs, and functional relationships between the inputs and outputs, wherein inputs include potential fault conditions associated with the components or functional elements. Weighting factors are associated with the fault conditions to identify the most likely cause. Functional relationships are developed using libraries of generic components that are used to create a diagnostic program during an off-line phase (410). Model functions (412) are determined and coded according to a suitable coding language (414). The resulting program is passed as a diagnostic model (426) operable of use in an on-line phase (420). The diagnostic model (426) provides input to an object engine (430) that is operational during the on-line phase (420), and receives specific inputs (424) and outputs of selected information (422) during operation thereof.